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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/664,866

09/22/2003

Toru Takayama

0756-7201

4319

31780

7590

03/15/2005

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EXAMINER

LE, THAO P

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H/A

<b>Office Action Summary</b>	<b>Application No.</b> 10/664,866	<b>Applicant(s)</b> TAKAYAMA ET AL.	
	<b>Examiner</b> Thao P. Le	<b>Art Unit</b> 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>01/06/05</u> . | 6) <input type="checkbox"/> Other: _____  |

DETAILED ACTION

Claims 1-22 are pending.

Claims 1-8, 20 have been amended.

Examiner withdrew the objection made in the previous office action.

***Information Disclosure Statement***

Information Disclosure Statement (IDS) filed on **01/06/2005** and made of record.

The references cited on the PTOL 1449 form have been considered.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

**Claims 1, 3, 5-7 are rejected under 35 USC 102 (a) as being anticipated by Miyasaka et al., U.S. Patent No. 6,632,749.**

Regarding claims 1, 3, 5, 6, 7, Miyasaka et al. discloses a method for manufacturing a semiconductor device (See Figs. 1-14 and Cols. 1-24) comprising: forming a semiconductor layer 502 over a glass substrate 501, forming an island-like insulating layer 503 over the semiconductor layer, forming an island-like light-absorbing layer 504 over the semiconductor layer 502 with the insulating layer 503 interposed

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therebetween, the island-like light-absorbing layer being capable of absorbing a pulsed light, performing a heat treatment for the semiconductor layer and the insulating layer by selectively heating the light-absorbing layer through an irradiation of the pulsed light, the light-absorbing layer covers the top face and the side face of the semiconductor layer and whose end portions are arranged outside of the semiconductor layer (Figs. 5a-5b, lines 25-40, Col. 15), forming a gate electrode overlapping with the semiconductor layer by forming a metal layer over the light-absorbing layer and then performing an etching step (Cols. 17-18).

### **Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 8, 11-12, 15, 16, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka et al., U.S. Patent No. 6,632,749.

Regarding claims 2, 4, 8, 15, 16, Miyasaka et al. discloses a method for manufacturing a semiconductor device (See Figs. 1-14 and Cols. 1-24) comprising: forming a semiconductor layer 502 over a glass substrate 501, forming an island-like insulating layer 503 over the semiconductor layer, forming an island-like light-absorbing layer 504 over the semiconductor layer 502 with the insulating layer 503 interposed therebetween, the island-like light-absorbing layer being capable of absorbing a pulsed light, performing a heat treatment for the semiconductor layer and the insulating layer by selectively heating the light-absorbing layer through an irradiation of the pulsed light, the light-absorbing layer covers the top face and the side face of the semiconductor layer and whose end portions are arranged outside of the semiconductor layer (Figs. 5a-5b, lines 25-40, Col. 15), forming a gate electrode overlapping with the semiconductor layer by forming a metal layer over the light-absorbing layer and then performing an etching step (Cols. 17-18). Miyasaka et al. fails to disclose the length of the light-absorbing of one side is equal or less than a thickness of the glass substrate and wherein a transmission factor of a pulsed light by the island-like light-absorbing layer is 7- percent or less and a transmission factor of the pulsed light by the glass substrate is 70 percent or more. It would have been obvious to one having ordinary skill in the art that the length of the light-absorbing layer has to be equal or less than the glass substrate in order for the light-absorbing layer not to block all light and also to protect the glass substrate from over heated by the light. It would have been obvious to one having ordinary skill in the art at the time the invention was made that the selection of such parameters such as **energy, concentration, temperature, time, molar fraction,**

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**depth, thickness, etc.**, would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art. "Normally, it is to be expected that a change in **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, or in combination of the parameters would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller* 105 USPQ233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmischer* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Regarding claims 11-12, 19-20, Miyasaka et al fails to disclose the pulse width of coherent light or non-coherent light is from 10 to 100 ns. It would have been obvious to one having ordinary skill in the art at the time the invention was made that the selection of such parameters such as **energy, concentration, temperature, time, molar fraction, depth, thickness, etc.**, would have been obvious and involve routine optimization which has been held to be within the level of ordinary skill in the art. "Normally, it is to be expected that a change in **energy, concentration, temperature,**

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**time, molar fraction, depth, thickness, etc., or in combination of the parameters**

would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art ... such ranges are termed "critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller* 105 USPQ233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmischer* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Claims 9-10, 13-14, 17-18, 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasaka et al., U.S. Patent No. 6,632,749, in view of Yamamoto Takashi, JP 2001102585 (submitted by applicants as IDS).

Regarding claims 9, 17, Miyasaka et al fails to disclose the light-absorbing layer is formed from a metal nitride. Yamamoto Takashi discloses the light-absorbing layer is form from a metal nitride. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use metal nitride as light-absorbing layer because metal nitride has higher melting point and stable when being heated at a high temperature.

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Regarding claims 10, 13, 14, 18, 21-22, Miyasaka et al discloses the light source is from laser beam which is inherently a coherent light, but fails to disclose the light source is a xenon flash light. Yamamoto Takashi discloses wherein the light source of the pulsed light is a xenon flash lamp. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use either laser beam or Xe lamp because either light source would carry out the same function.

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Thao P. Le', with a stylized, cursive script.

Thao P. Le

Examiner

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